

**U.S. FISH AND WILDLIFE SERVICE
SPECIES ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM**

SCIENTIFIC NAME: *Dichanthelium* (= *Panicum*) *hirstii*

COMMON NAME: Hirsts' Panic Grass

LEAD REGION: Region 5

INFORMATION CURRENT AS OF: October 2005

STATUS/ACTION:

☐ Species assessment - determined species did not meet the definition of endangered or threatened under the Act and, therefore, was not elevated to Candidate status

☐ New candidate

☒ Continuing candidate

☐ Non-petitioned

☒ Petitioned - Date petition received: May 11, 2004

☐ 90-day positive - FR date:

☐ 12-month warranted but precluded - FR date:

☐ Did the petition requesting a reclassification of a listed species?

FOR PETITIONED CANDIDATE SPECIES:

a. Is listing warranted (if yes, see summary of threats below)? Yes

b. To date, has publication of a proposal to list been precluded by other higher priority listing actions? Yes

c. If the answer to a. and b. is "yes", provide an explanation of why the action is precluded. During the past 12 months, almost our entire national listing budget has been consumed by work on various listing actions to comply with court orders and court-approved settlement agreements, emergency listings, and essential litigation-related, administrative, and program management functions. We will continue to monitor the status of this species as new information becomes available. This review will determine if a change in status is warranted, including the need to make prompt use of emergency listing procedures. For information on listing actions taken over the 12 months, see the discussion of "Progress on Revising the Lists," in the current CNOR which can be viewed on our Internet website (<http://endangered.fws.gov/>).

☐ Listing priority change

Former LP: ☐

New LP: ☐

Date when the species first became a Candidate (as currently defined): July 1998

☐ A – Taxon is more abundant or widespread than previously believed or not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status.

☐ U – Taxon not subject to the degree of threats sufficient to warrant issuance of a

proposed listing or continuance of candidate status due, in part or totally, to conservation efforts that remove or reduce the threats to the species.

- ☐ F – Range is no longer a U.S. territory.
- ☐ I – Insufficient information exists on biological vulnerability and threats to support listing.
- ☐ M – Taxon mistakenly included in past notice of review.
- ☐ N – Taxon does not meet the Act’s definition of “species.”
- ☐ X – Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: Flowering plants, Poaceae (True Grasses)

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: NJ, DE, NC, GA

CURRENT STATES/ COUNTIES/TERRITORIES/COUNTRIES OF OCCURRENCE: NJ, DE, NC

LAND OWNERSHIP: Both North Carolina populations occur on federal lands. The Delaware population occurs on Assawoman Pond, a State-owned Wildlife Management Area. One New Jersey population occurs on land owned by The Nature Conservancy and a second newly discovered population occurs on State-owned land (Wharton State Forest).

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LEAD FIELD OFFICE CONTACT: New Jersey Field Office, Annette Scherer, 609-383-3938, ext. 34; annette_scherer@fws.gov

BIOLOGICAL INFORMATION:

Species Description

Dichanthelium hirstii, a perennial grass, produces erect leafy flowering stems from May to October. These stems may develop from over-wintering rosettes or from nodes of stems remaining from the previous year (Schuyler, 1998). The culms are 55 - 80 centimeters (cm) tall with flat leaf blades that are stiffly erect or narrowly ascending, without hairs, green often tinged with purple, and 4.5 - 11cm long and 3 - 5.5 millimeters (mm) wide. The 1.8 – 2.1 mm-long flowers (spikelets) are produced terminally on a narrowly branched inflorescence (panicle) that is from 4.5 – 9 cm long and about 5 mm wide with branches as much as 2.5 cm long (Swallen, 1961).

Toward the middle or latter part of the growing season, leafy rosettes develop from the basal parts of existing plants. Also during this time, seeds germinate and produce leafy rosettes (Shuyler, 1998). Seeds presumably persist in seed banks similar to those of related species (Kirkman and Sharitz, 1994; Wisheu and Keddy, 1991).

Taxonomy

Hirsts' panic grass was described as the distinct species *Panicum hirstii* by Swallen (1961) from a specimen collected in 1958 by Frank Hirst, an active amateur botanist in southern New Jersey. According to a taxonomic review conducted by Schuyler (1996), the plant had first been collected in 1900 in Sumter County, Georgia and had been "doubtfully" described by Hitchcock and Chase (1910) as *Panicum roanokense* Ashe. Others considered the plant to be a variant of *Panicum neuranthum* Griseb (Kral, 1983) or conspecific with *Panicum aciculare* Desv. (Gleason and Cronquist, 1992). In his taxonomic review, Schuyler (1996) concurred with the findings of Swallen (1961), concluding that *Panicum hirstii* was taxonomically distinct. More recently, systemists have split a group of species from the genus *Panicum* into the genus *Dicanthelium*. There is agreement among botanists working with Hirsts' panic grass that *Dicanthelium hirstii* (Swallen) Kartesz is the appropriate nomenclature for the species (LeBlond, pers. comm., 2004; Schuyler, pers. comm., 2004; Natural Resources Conservation Service, 2004). The Service has carefully reviewed the available taxonomic information and has concluded the species is a valid taxon.

Habitat

Dicanthelium hirstii occurs in Coastal plain intermittent ponds, usually in wet savanna or pine barren habitats. The species requires habitats that are at least intermittently wet, receiving full sun to light shade, and with substrates that are organic but firm. The plant occurs in flat-bottomed depressions with substantial water-level fluctuations dependent on rainfall. The species relies on periods of standing water to keep competing species at a minimum. Individual populations can vary dramatically in size from year to year. In some years, plants may not appear (Kral, 1982; Schuyler, 1996).

Historical Range/Distribution

The species' historic range included seven sites within New Jersey, Delaware, North Carolina, and Georgia. *Dicanthelium hirstii* has not been observed at the known sites in Sumter and Calhoun Counties, Georgia, for over 30 years and may now be extirpated at one of the known Atlantic County, New Jersey sites.

Current Range/Distribution

Dicanthelium hirstii occurs at only two sites in New Jersey, one site in Delaware, and two sites in North Carolina.

Population Estimates/Status

Of two recently known sites in New Jersey (Barkwoods Pond and Labounsky Pond, collectively known as Hirsts Ponds), the species had not been seen at Barkwoods Pond since 1992 and at Labounsky Pond from 1985 to 2003 (Schuyler, 1998). Thorough surveys of the Hirsts Ponds were conducted in 2001 with negative results (Schuyler, pers. comm, 2001). In 2003, 4-5 *Dicanthelium hirstii* culms were found at Labounsky Pond (Gordon, pers. comm., 2004; Juelg, pers. comm., 2004), the first confirmed sighting of the species at this site in 18 years. The species was not found in Barkwoods Pond in 2003 (Gordon, pers. comm., 2004; Juelg, pers.

comm.. 2004). In 2004, 38 culms were found at a new site (Hampton Central Pond) located within Wharton State Forest (Gordon, pers. comm., 2004; Juelg, pers. comm.. 2004).

The number of plants counted at the Assawoman Pond site in Delaware has fluctuated over the last 5 years (1999-2003). During this period, the maximum number of plants counted occurred in 2000 when 190 plants were found (McAvoy and Bennett, 2000; McAvoy, pers. comm., 2004). Although the number of plants at the site fluctuates, the Delaware population is believed to be relatively stable (75 to 150 individual are usually counted annually) (McAvoy, pers. comm., 2005).

The two sites in North Carolina occur on the Camp Lejeune Marine Corps Base. One site, referred to as Lyman Road Cypress Savanna, consists of plants scattered over an area of approximately 25 x 20 meters (Schuyler, 1998). Approximately 80-100 clumps of *Dichanthelium hirstii* were counted at the Lyman Road site in 1990 (LeBlond, pers. comm., 2004). The other site, referred to as Starretts Meadow, occurs over an area of about 20 x 15 meters (Schuyler, 1998). Approximately 150-200 fruiting clumps were counted at the Starretts Meadow site in 1994 (LeBlond, pers. comm., 2004). Regular counts of Camp Lejeune populations are not currently conducted. Several fruiting clumps of *Dichanthelium hirstii* were observed at each of the sites in May 2000 (LeBlond, pers. comm., 2004).

THREATS:

A. The present or threatened destruction, modification, or curtailment of its habitat or range.

In New Jersey, *Dichanthelium hirstii* habitat at Labounsky Pond has been impacted by an illegally constructed ditch. This ditch drains surface water from a construction parking / heavy equipment storage yard into Labounsky Pond. Runoff of oil, fuel, and lubricants from this storage yard poses a threat to water quality within the pond (Eisenhauer, pers. comm., 1998; Patt, pers. comm., 2000). At both ponds in New Jersey, there is a growing population of resident Canada geese (*Branta canadensis*). Grazing by these geese is impacting vegetation in the ponds and fecal matter is increasing nutrients and contributing to formation of dense algal mats (Schuyler, pers. comm., 1998; Patt, pers. comm., 2000). In Delaware, an adjacent sandpit and agricultural ditching in the area may be lowering water levels at the sites, threatening the hydrology of the site (McAvoy et al., 1999). Encroachment of woody vegetation is an ongoing problem that is actively managed by the Delaware Natural Heritage Program staff (McAvoy, pers. comm., 2004). This woody vegetation includes primarily, red maple (*Acer rubrum*) and secondly, sweet gum (*Liquidambar styraciflua*) (Bennett, pers. comm., 1998; McAvoy, pers. comm., 1998). Though there are no known immediate threats to the two North Carolina populations, both sites are within areas zoned for military training exercises (LeBlond, pers. comm., 1998). The red-cockaded woodpecker (RCW) also occurs at one of the sites in North Carolina. The military has protected this zone for the benefit of the RCW. However, there is no specific protection for *D. hirstii*. Fluctuations in climatic conditions may be affecting all four extant populations, particularly lack of rainfall and extreme high temperatures resulting in drought conditions.

B. Overutilization for commercial, recreational, scientific, or educational purposes.

Not a significant threat to the species.

C. Disease or predation.

Not a known threat.

D. The inadequacy of existing regulatory mechanisms.

Dichanthelium hirstii is included on Delaware's rare plant list. The State of Delaware does not have a state endangered species act. The State has a rare plant conservation program. However, no legal protection is given to plants; any protection is strictly voluntary.

Dichanthelium hirstii is listed as endangered by the State of New Jersey. However, the State provides no regulatory protection for listed plant species. It is against State law to collect plant species occurring on state land, but private landowners with endangered plants on their property have no restrictions.

Dichanthelium hirstii is listed as endangered by the State of North Carolina. Any person wishing to collect a listed plant species must have written permission from the property owner as well as a permit from the North Carolina Department of Agriculture's Plant Conservation Program. If species are illegally collected, the penalty is a fine of up to \$2,000 per plant collected.

In Georgia, *Dichanthelium hirstii* is protected by the state under provisions of the Wildflower Preservation Act of 1973. The species can not be removed from public land without authorization; a tag is required to transport protected species; and selling protected species is illegal without permission of the landowner.

E. Other natural or manmade factors affecting its continued existence.

Competition from rhizomatous perennials, particularly *Eleocharis robbinsii*, that dominate the turf covering the pond bottoms, is a threat in Hirst Ponds, New Jersey. Dense growth of *Utricularia fibrosa* and algae may be retarding growth of *Dichanthelium hirstii* plants at Barkwoods Pond when water is present (Schuyler, pers. comm., 1998). At Assawoman Pond, *Dichanthelium hirstii* does not occur in areas dominated by dense carpets of *Sclerolepis uniflora*, a rhizomatous perennial (McAvoy, pers. comm., 2004). Similar observations were made at the Camp Lejeune sites in North Carolina. At one site in North Carolina, where *Utricularia inflata* and algae in the water were present, plants of *Dichanthelium hirstii* were much smaller than at the other site in North Carolina, which had deeper and clearer water (Schuyler, 1998). Given that populations are small and isolated, the vulnerability of the species to the threats mentioned above is exacerbated.

CONSERVATION MEASURES PLANNED OR IMPLEMENTED:

The Delaware Division of Fish and Wildlife and Delaware Natural Heritage Program have conducted periodic removal of encroaching straw-colored sedge (*Carex striata*) and woody vegetation at Assawoman Pond and have effectively managed and possibly eliminated the *Carex*

striata threat at the site (McAvoy, pers. comm., 2004). It is presumed that the Delaware Natural Heritage Program will continue to deal with existing and future threats to the species. However, concerns from encroachment by *Acer rubrum* and *Liquidambar styraciflua* and changes to hydrology of the site remain (McAvoy and Bennett, 2000).

The Marine Corps has cooperated in *Dichantheium hirstii* protection efforts in recent years by avoiding activities that would adversely affect the species at the Camp Lejeune, North Carolina sites. One site at Camp Lejeune is within a protected zone maintained for red cockaded woodpecker (LeBlond, pers. comm., 1998). However, there are no specific protection measures for *D. hirstii*.

In New Jersey, The Nature Conservancy (TNC) is working with the construction company near Labounsky Pond to eliminate impacts from the illegally constructed ditch. Active management will be necessary to ensure that impacts are eliminated or minimized. Experimental treatments of the pond bottoms at Labounsky and Barkwoods Ponds were initiated in 1999 in an attempt to stimulate any naturally occurring seed bank of *Dichantheium hirstii* at these sites (Patt, pers. comm., 2000). In summer 2003, a small number of *Dichantheium hirstii* plants were found at the Labounsky Pond site (Gorden, pers. comm., 2004; Juelg, pers. comm., 2004).

SUMMARY OF THREATS

The major threats to *Dichantheium hirstii* are habitat degradation that affects the hydrology of the species wetland habitat, competition from rhizomatous perennials, and inadequate regulatory mechanisms to protect this species. Impacts from geese (grazing and nutrient loading) and encroachment of woody vegetation are minor threats to *Dichantheium hirstii*. Given that populations are small and isolated, the vulnerability of the species to the threats mentioned above is exacerbated.

For species that are being removed from candidate status:

___ Is the removal based in whole or in part on one or more individual conservation efforts that you determined met the standards in the Policy for Evaluation of Conservation Efforts When Making Listing Decisions (PECE)?

RECOMMENDED CONSERVATION MEASURES:

LISTING PRIORITY

THREAT			
Magnitude	Immediacy	Taxonomy	Priority
High	Imminent	Monotypic genus	1
		Species	2
		Subspecies/population	3
	Non-imminent	Monotypic genus	4
		Species	5*

		Subspecies/population	6
Moderate to Low	Imminent	Monotypic genus	7
		Species	8
		Subspecies/population	9
	Non-imminent	Monotypic genus	10
		Species	11
		Subspecies/population	12

Rationale for listing priority number:

Magnitude:

While all four extant *Dichantheium hirstii* populations are located on public land or privately-owned conservation lands, threats to the species from encroaching vegetation and fluctuations in climatic conditions are significant and may be exacerbated by anthropomorphic factors occurring adjacent to the species' wetland habitat. Given the low numbers of plants found at each site, even small changes in the species' habitat could result in local extirpation. Loss of any known sites would constitute a significant retraction of the species' range. The small number of populations and their small sizes make this species highly vulnerable.

Imminence:

While some threats to the species have previously occurred and / or are currently occurring, the most immediate and severe of these threats (*i.e.*, ditching at Labounsky Pond, encroachment of aggressive vegetative competitors) have been curtailed or are being actively managed. However, the management at Labounsky Pond will no longer be actively managed since the closure of the local TNC office.

Have you promptly reviewed all of the information received regarding the species for the purpose of determining whether emergency listing is needed? Yes

Is Emergency Listing Warranted? Based on the best available scientific information emergency listing is not warranted at this time.

DESCRIPTION OF MONITORING:

Information regarding the status of the species is being monitored through annual coordination with New Jersey, Delaware, and North Carolina Natural Heritage Program staff, species experts, and local professional and amateur botanists.

The last status survey for the species was conducted in 1998 and included only sites in New Jersey, Delaware, and North Carolina (Schuyler, 1998). The historic and rediscovered New Jersey populations are monitored sporadically on a voluntary basis by interested botanists and naturalists. Many of these monitoring efforts go unreported. For example, the Service did not learn until June 2004 that *Dichantheium hirstii* had been rediscovered at Labounsky Pond in summer of 2003 by local botanists. The Delaware population is monitored annually by the Delaware Natural Heritage Program. The North Carolina populations are not regularly monitored.

This level of monitoring is not appropriate to provide an adequate update of the species' current status. Given the low numbers of plants found at only four known locations, loss of any known sites would constitute a significant retraction of the species' range.

COORDINATION WITH STATES:

Indicate which State(s) (within the range of the species) provided information or comments on the species or latest species assessment: New Jersey, Delaware, and North Carolina

Indicate which State(s) did not provide any information or comments: N/A

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Personal Communications

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